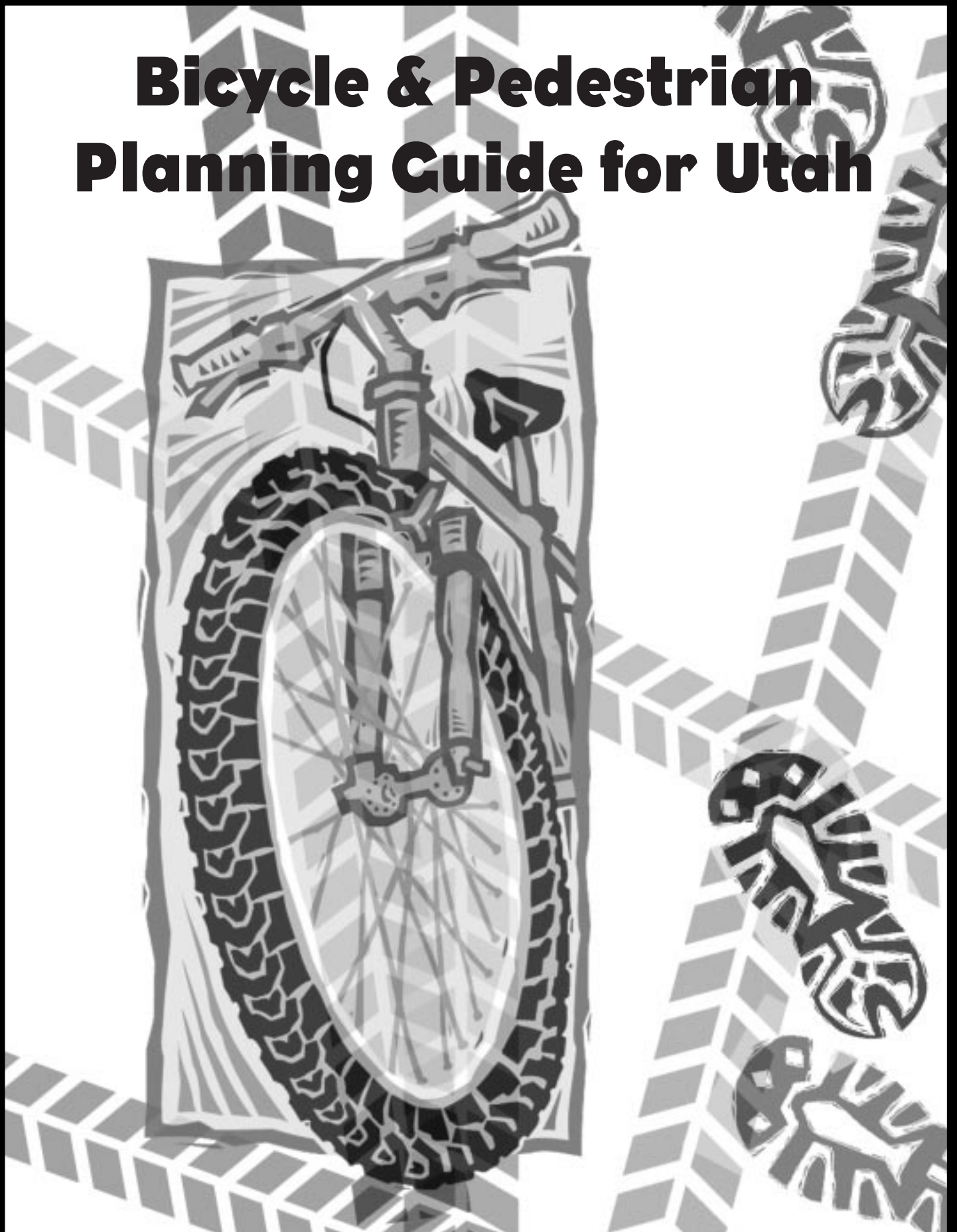


Bicycle & Pedestrian Planning Guide for Utah





Bicycle/Pedestrian Planning Guide for Utah



Forward

This guide was designed to help planners at the local level in Utah develop and implement their own Bicycle and Pedestrian Master Plans. While plenty of information has been published elsewhere, there is a lack of practical information on how to get a plan adopted and implemented at the local level. Many City planning staffs in Utah are without specialized backgrounds in bicycle and pedestrian facility planning. They report being too overwhelmed with the demands of development growth and automobile traffic problems to adequately deal with bicycles and pedestrians. In addition, local planners say they are in a difficult position, squeezed between a lack of funding at the state and regional levels to plan and build bicycle and pedestrian projects and a lack of time needed to educate and develop citizen support for these projects. Though this guide was written specifically for Utah, it will also serve as a planning template for cities in other states who may be facing similar obstacles.

Much of the experience for this guide was gained by the author as Salt Lake City's Transportation Alternative Transportation Coordinator from 1992 through 1997. In the first position of its kind in the state of Utah, Julie Eldridge planned, promoted and coordinated implementation of 40 miles of Class II and 30 miles of Class I bicycle facilities. Ms. Eldridge also produced the first Bikeways Map for public distribution in the state, and created a week of bicycle events called "Cycle Salt Lake" that drew over 5,000 participants in 1996. As a result of her efforts, Salt Lake City now has more bicycle facilities built than any other City in Utah. Her experiences should prove invaluable to other cities embarking on their own planning efforts.

Ms. Eldridge is now in private practice with Parsons Brinckerhoff in Murray, Utah, specializing in bicycles, pedestrians, transit and ADA planning.



Bicycle & Pedestrian Planning Guide for Utah

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Bicycle/Pedestrian Planning Guide for Utah

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CHAPTER 1: BICYCLE AND PEDESTRIAN PLANNING IN UTAH

1.1 Introduction The Need For Better Planning

Utah, like most states in the western United States, has grown enormously in population over the past 50 years, filling in vast empty spaces that, until recently, were accessible only by automobile. The automobile, in turn, has influenced land use patterns by allowing fields and open land to be converted to suburbs and shopping malls, farther and farther away from downtown cores, transit service and centers of employment.

Land use patterns, coupled with a transit system that is not funded at a level to allow it to com-

pete in attractiveness with the automobile, has forced Utahns into a dependency on the automobile for nearly every trip.

cities typically achieve a 3% transit or a 3% bicycle/ pedestrian mode split. Investments in roads and policy choices to support the automobile have shaped Utahns' travel choices over several generations. By attacking the root of the automobile dependency problem we have an opportunity to create new incentives and policies that will allow people to make different and better travel choices. Without some fundamental changes in the policies and practices that created automobile dependency, we are not likely to change people's travel behaviors.

1.2 The State of the State: How Utah is Doing

MODE SPLIT COMPARISONS BY STATE

Source: 1990 Census for all Trips

	Bicycle	Walked	Transit	Carpooled	Drove Alone
UTAH	.68%	3.42%	2.27%	15.18%	73.90%
ARIZONA	1.38%	3.41%	1.93%	14.94%	73.62%
CALIFORNIA	0.94%	3.37%	4.01%	14.61%	71.61%
COLORADO	0.80%	4.22%	2.80%	12.84%	74.30%
NEVADA	0.74%	4.11%	2.46%	15.49%	73.36%
OREGON	1.05%	4.17%	3.21%	12.76%	73.32%

pete in attractiveness with the automobile, has forced Utahns into a dependency on the automobile for nearly every trip.

The problem of automobile dependency in the West is a situation that has grown out of eight decades of investment in roads and automobiles while our European neighbors, by comparison, were investing in railroads and public transit. As a result, many European cities boast as many as 30% of their trips are made by transit (e.g., Paris, London, Berlin) and other cities have a 30% walking and bicycling mode split (e.g., Amsterdam, Copenhagen, Munster) American

Comparing six states in the western region, Utah has the lowest bicycle mode split and one of the highest drive alone rates of all the states studied.

Another startling fact to note is Utah's bicyclist fatality rate: at 4.5 fatalities per million population Utah's rate is 36% higher than the national average. So, while Utah has fewer people riding bicycles than neighboring states, it also has more people getting killed riding bicycles. (See Figure 1: NHTSA Traffic Safety Facts 1996) Pedestrians in Utah aren't faring much better.

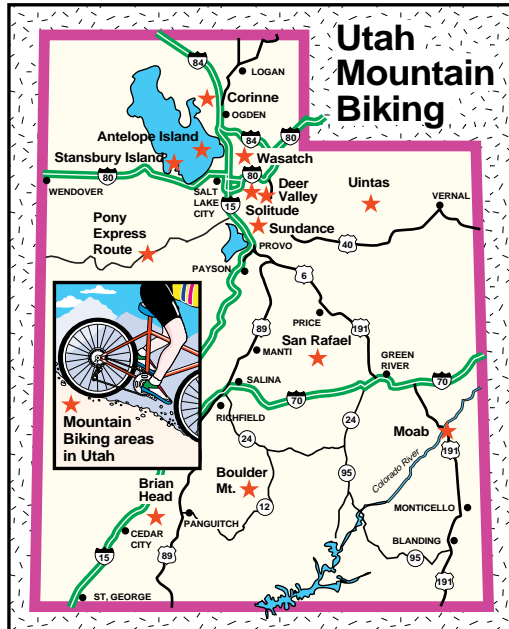


According to an article published on November 10, 1997 in the Salt Lake Tribune, there were 202 pedestrians involved in motor vehicle crashes in 1995. That number jumped 65% in 1996 to 315 when I-15* went under construction. Communities along the Wasatch Front report pedestrian/auto crashes are up, particularly along arterial streets like State Street and Redwood Road that are absorbing the traffic that used to be on I-15. (See Salt Lake Tribune articles, Appendix ..1)

In spite of the serious situation for commuting cyclists and pedestrians in Utah, the state does have a national reputation as a cycling vacation destination. Utah's mountains and deserts are natural environments for cycling and hiking (see map: Utah Mountain Biking). However, without a long-term plan to purchase and set aside open space for these activities, Utah's natural areas will be threatened by development and wilderness designations that exclude bicycles. Over the past several years, planning efforts in

has produced a preliminary route map of regionally significant trails and routes (See Figure 2). This trail map is in a draft form and has not been budgeted or implemented. UDOT's Bicycle and Pedestrian Planner has produced a wonderful draft policy and design document of how bicycles and pedestrians should be addressed as an element of the state's transportation system. However, there are no specific routes mentioned in this document where bicycles will be accommodated. This document does not include a budget or implementation plan, and has yet to be adopted. The Cache Valley MPO in Logan will be starting their first Bicycle and Pedestrian Plan later this year.

The best regional planning effort we found in the State is being done by the Mountainlands Association of Governments in an effort to mitigate their non-attainment status for air quality. Their Utah County Non-Motorized Trails Plan, adopted in November of 1996, identifies an extensive network of trails that are mapped and budgeted for annually. (See Figure 3)



Utah have begun to address bicycles and pedestrians as part of the overall transportation system. The Wasatch Front Regional Council

1.3 Cities Survey Results

Every Metropolitan Planning Organization, County and City in Utah big enough to have a planning department was surveyed in April of this year (1998), to determine how much progress was being made at the local level in planning for bicycles and pedestrians. The survey did find several cities who were doing a better than average job of budgeting and building Class I trails (notably Park City, Provo, St. George and Moab). However, most Utah Cities did not have a plan to address bicycles and pedestrians as a part of their transportation infrastructure. To our knowledge, only Salt Lake City has designated and signed Class II bike routes for their bicycle commuters. A few cities claimed to have some Class II routes, but further inspection revealed these did not have bicycle markings in the pavement nor bike route signs.

*The I-15 project is one of the nation's largest highway construction projects, totalling 17 miles in length and 12 lanes wide. I-15 is the major North-South transportation corridor for Salt Lake County. It includes the replacement of 144 bridges and 7 single point urban interchanges.



CITIES PLANNING SURVEY RESULTS

Of the forty-four entities surveyed:

- Two had master plans with financial plans for implementation.
- Four said they evaluated some percentage their road projects for including bikes and pedestrians.
- Six had zoning ordinances requiring inclusion of bikes and pedestrians.
- Seven had a bicycle/pedestrian trained planner.
- Eight had money budgeted for specific projects.
- Fourteen had at least one Class I Trail.
- Sixteen had active bicycle advisory committees.

Source: Parsons Brinckerhoff, June 1998

1.4 Strategies For Utah's Future: How Can We Do Better?

Three specific policy areas have been identified as critical to the changes that need to happen in Utah in order to help create livable communities and a range of safe and attractive travel options for our citizens:

1. The connection needs to be made between the amount of money spent on bicycle and pedestrian projects, the high fatality rate and the non-motorized mode split. Current funding levels are not likely to result in a higher percentage of Utahns choosing to bicycle or walk instead of driving.
2. There is significant latent demand for walking and bicycling in Utah that is not being met or measured. The needs of all modes of travel should be included in every project planned and built.
3. Projected growth in Utah's population and

automobile traffic requires new approaches to transportation and land use planning in order to preserve the quality of life in our neighborhoods. Zoning ordinances that require bicycle parking, showers and lockers in employment centers would provide incentives to walk or bike. Zoning for mixed use development would create more destinations within walking distance.

1. The Mode Split/Funding Level Problem

While billions of tax dollars have been allocated for road projects in Utah, very little funding has been directed toward bicycle and pedestrian projects. In the 1999 to 2003 draft Transportation Improvement Plan for the Wasatch Front metropolitan area, bicycle projects represents less than 1% of the total projects programmed. At the State and Federal levels, an estimated \$2 to \$3 billion dollars is programmed for highway improvements over the next five years. No dedicated budget exists per se to build bicycle or pedestrian projects in the Transportation Department. \$14 million out of \$21 million of the State's Federal Enhancements money did go to building bicycle projects over the past four years. On an annual basis this amount represents .01% of the State's total transportation expenditures.

Where virtually all of the ISTEA (and TEA-21) categories are eligible for bicycle and pedestrian projects, Utah restricts these projects to the Enhancements category. (See Figure 4 for projected TE and TEA apportionments by State). An annual budget of about \$500,000 is spent out of the State Parks Department on trail development statewide, requiring a 50% match from another source. Most existing funding will pay for construction only, leaving the cost of planning facilities up to the local governments.



The State of Oregon, with nearly double the bicycle mode split of Utah, passed a law in 1971 requiring that 1% of every highway project budget be spent on the bicycle component.* Examples can be found in specific cities in Oregon, Washington, Idaho and Colorado where a dedicated funding source for bicycle and pedestrian improvements resulted in measurable improvements in their mode splits. The best example we found was Boulder, Colorado with a \$7 million budget this year for trails, green space and pedestrian projects for their city. After eight years of consistently setting funding priorities for these projects, Boulder now boasts a 19% pedestrian mode split and an 11% bicycle mode split. Utah's .68% bicycle mode split indicates there is a strong correlation between low bicycle usage and low funding levels.

2. The Latent Demand for Bicycle and Pedestrian Facilities

Data from the 1990 Census Personal Transportation Survey show that 40% of all trips are less than 2 miles in length and almost 63% of all trips are within 5 miles. These distances are well within the ability of the average person on a bicycle. Moreover, 27.5% of all trips are less than one mile in length - a comfortable walking distance. These are trips that could be made by bicycle or walking if the facilities existed to allow it.

Many local trips Utahns would make on foot or by bicycle are being forced into cars simply because it is unsafe and unattractive to do so. Long stretches of roads between housing and commercial areas have no sidewalks to walk on or shoulders to ride bikes on. The future livability of our communities depends largely on our efforts to keep them accessible to all modes of travel and friendly to people at a human scale.

* ORS 366.514 is being used as a model for a similar bill drafted by Rep. Dave Jones (D) for the 1999 session. See page 31.

The problem with using the existing bicycle and pedestrian mode splits is that they tend to under-rate the demand for these facilities. It has been too easy in the past to dismiss these projects because the numbers show "there is no demand for them". Roads that used to have a safe shoulder for bicyclists have been re-striped in Utah to make room for more cars based on automobile volume projections without considering a potential increase in bicycle traffic if the shoulders were made safer.

Most studies show that in affluent societies, among those above the poverty line, the most significant criterion for mode choice is time required. Without draconian anti-motoring measures (either unplanned as in San Francisco, or planned as in some European cities), increasing the bicycle mode split will have to rely on a system that allows cycling transportation to be done at the cyclists desired speed and with a minimum of delay.

SOLUTIONS FOR MEASURING LATENT DEMAND FOR BICYCLE/PEDESTRIAN FACILITIES INCLUDE:

- Home-based travel surveys
- Workplace surveys for specific commuter travel corridors
- Neighborhood coalition building/petition drives
- Projecting increases in non-motorized travel as a result of improved facilities, increased traffic congestion and demographic shift. (Fully one-third of the U.S. population will be too young or too old to drive by the year 2020.)

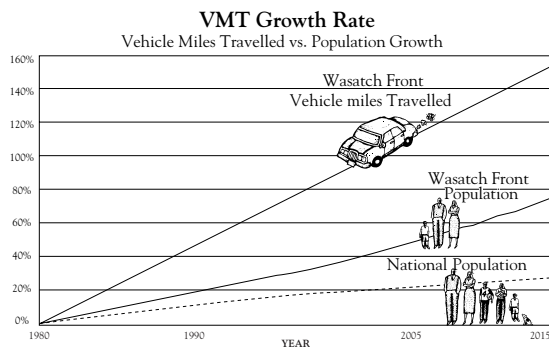


Air pollution along the Wasatch Front



3. Quality Growth versus Sprawl and More Roads

Automobiles contribute more than half of the air pollution in the Wasatch Front. Several Utah cities have reached non-attainment status for air quality; that is, they no longer meet minimum public health standards for breathable air. And, with our population projected to double in the next 30 years, vehicle miles traveled are projected to more than double. For most Utah communities this will mean more exhaust fumes, more noise and more bicycle and pedestrian fatalities as traffic volumes increase.



Vehicle miles travelled are increasing faster than population. Widening streets and building new ones to meet this demand as a sole solution cannot be sustained indefinitely into the future. We need additional solutions to preserve the livability of our communities. We need mixed use zoning ordinances to allow origins and destinations in walking and bike riding distance. We need safe sidewalks, shoulders on the roads and bike trails to get there. We need better land use planning that protects the fabric of life in our

communities. Did you know, for example:

- Bicycles and pedestrians contribute no air pollution.
- Walking and riding a bike are healthy activities that contribute to cardio-vascular fitness and improved mental outlook.
- Homes increase in value by up to 20% that are located next to trails or open space. (Source: Economic Impacts of Protecting Rivers, Trails and Greenway Corridors by the National Park Service, 1991)
- You can accommodate 12 bicycles in the space it takes to move one car.
- Every car that enters the transportation system requires five new parking spaces to be built. (John Williams, NHI Bicycle and Pedestrian Safety Course Instructor)
- (See also Appendix 2: The Economic and Social Benefits of Off-Road Bicycle and Pedestrian Facilities: NBPC Technical Brief)

1.5 Definitions and Terminology

For planning purposes, it helps to have a common language to describe the categories of bicycle facilities. We recommend The AASHTO Guide For The Development of Bicycle Facilities, published by the American Association of State Highway and Transportation Officials. This Guide establishes a national standard for bicycle facilities. Each project will have special circumstances that require good judgement on the part of planners and engineers to adapt these

SOLUTIONS FOR SUSTAINABLE GROWTH INCLUDE:

1. Requiring developers to accommodate all modes in their developments. This can be achieved through more specific zoning ordinances in your city.
2. Plan higher densities and mixed land uses around existing or planned transit corridors.
3. Apply the strategies of traffic calming, minimum parking allowances, shared use of existing parking, Travel Demand Management programs and incentives.
4. Find new funding sources to complete trail systems including municipal bonds, impact fees, and private donation funds.



standards according to physical and fiscal constraints. For more design detail, see Appendix 3: Selecting Roadway Design Treatments to Accommodate Bicycles by the FHWA. Appendix 4 has Sign Standards and Appendix 5 has Symbol Dimensions and Placement.



A Class I Bicycle Path in Oregon

BICYCLE PATH (BIKE PATH)- A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right of way or within an independent right of way.

This is also called a Class I facility. Class I facilities are often shared between pedestrians, cyclists, in-line skaters, skate boarders, baby carriages, dogs and even horses. The heavier the expected use on the path and the greater the mix of expected users, the greater the width needed. As far as State Trails funding goes, a minimum of 10' of width is required. You can add 2' of width on each shoulder that is unpaved for joggers who want to get out of the



Shoulders on overpasses allow bicycle connections.

way of the faster bicyclists. Adding equestrian uses demands adding a separate trail for that function paralleling the bike path to avoid conflicts and injuries resulting from an encounter with a frightened horse.

BICYCLE LANE (BIKE LANE)- A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

This type of bicycle facility is also referred to as a Class II facility: it sets aside a minimum of 4' on the far right shoulder of a roadway for bicycles. The bike lane width should increase with the vehicular speed of the roadway: speeds over 35 m.p.h. require a 5' or 6' bike lane. Higher speeds dictate special treatment, including using up to an entire vehicular lane width and/or physical separation from the roadway (barriers, fencing or landscaping).



Campuses require special bicycle accommodations.

BIKEWAY - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. **Also,**

SHARED ROADWAY - Any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.



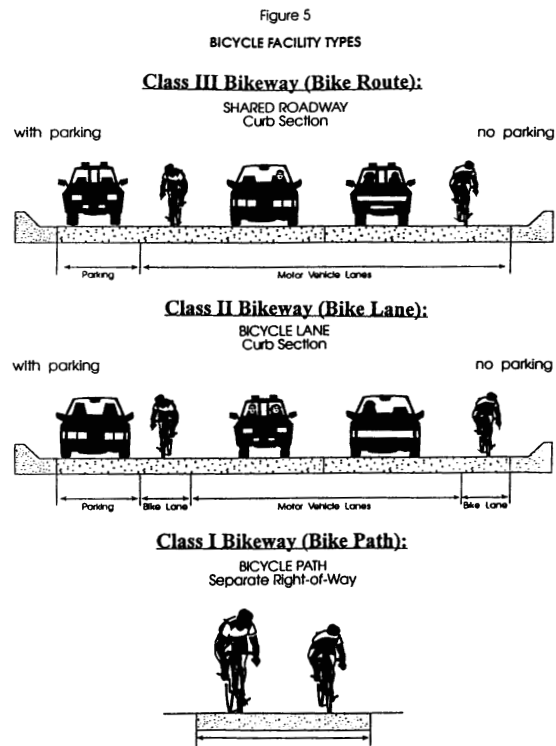
These are also called Class III facilities and are the least desirable for cyclists on roads with heavy traffic. Cyclists are legally allowed to use the roadways with the same rights and responsibilities as an automobile. Technically, all roads are bikeways unless bicycles are expressly forbidden to use them. There is a benefit to cyclists to having a wide (5' or 6') shoulder to ride on, but if the shoulder is not signed or striped for bikes, they must share it with parked cars, garbage cans, and turning movements. Studies have shown that cyclists will go out of their way to use streets with a painted bike lane and bike route signs posted for the extra margin of comfort and safety they perceive it gives them.

While bike lanes may be used to identify safer or preferred routes, cyclists must at some time leave these corridors and use other streets to reach their destinations.

1.6 Forest Service Trails

Bicycle and pedestrian facilities through natural areas are designated to a different set of standards than those in an urban environment. In Utah, these standards would apply to the majority of the Bonneville Shoreline Trail as well as any other open space areas. The US Forest Service has published a handy [Trail Construction and Maintenance Notebook](#) (Revised April 1997) with guidelines for trail design and maintenance in natural environments. Good judgment is required to assess the grades and terrain of the area to determine trail width, level of difficulty, user needs and surface treatment. They state:

"Most high-use trails should probably be constructed in the 5 to 12% (grade) range. Trails at grades over 20% become difficult to maintain in the original location without



resorting to steps or hardened surfaces... For example, in the Northern Rockies, trail corridors for traditional packstock are cleared 2.5m (8 feet) wide and 3m (10 feet) high. Hiker trails are cleared 2m (6 feet) wide and 2.5m (8 feet) high. Check with your local trail manager to determine the appropriate dimensions for each of your trails."

For the Salt Lake Valley area, contact Bob Piscopo at the Forest Service Cottonwood Station at (801) 943-1794.



CHAPTER 2: KEY ELEMENTS OF A MASTER PLAN

The key components of a Bicycle & Pedestrian Master Plan are:

- Setting Visions and Goals
- Budgeting for Success
- Three Design Elements Needed in Every System
- Special Pedestrian Needs
- Connections to Transit
- ADA Requirements
- Maintenance and Other Issues

2.1 Setting Visions and Goals

According to the Federal Highways ISTEA Report "A Synthesis of the State of the Practice", the most developed bicycle and pedestrian plans established clear goals and objectives and included performance measures to establish how well the plans are being implemented. Effective performance measures must first establish a baseline against which future improvements can be evaluated. For these plans, the baseline included determining the current number of bicycling and walking trips, determining mileage of existing bicycle facilities, and identifying funding levels for providing facilities and programs. A time frame for establishing specific programs was also included in some plans.

Entities mentioned in the Best Practices Report include the Delaware Valley Regional Planning Commission and the New Jersey DOT. Portland Oregon, and the State of Oregon's Bicycle and Pedestrian Plan are mentioned as the very best comprehensive plans done in the nation, and should serve as a model for other cities and states (information is provided in the appendix to order your own copy). In Utah, the best example of planning for alternate modes is "The Utah Valley Non-Motorized Transportation System" published by the Mountainland Association of Governments. They are the first

regional government entity in the state to publish a budget and an implementation plan for building their trail system.

Sample Visions and Goals For Utah

The following are examples of good vision and goal statements we have found in other plans, notably The National Bicycle and Walking Study and The Oregon Bicycle and Pedestrian Plan. If each Utah city adopted similar goals, we could really start to make a difference at the regional level. If UDOT and the Councils of Government adopted goals like these and set a budget amount to achieve them we could start to see a change in the fabric of our communities and in people's travel choices. Visioning exercises with active citizen involvement are important for cities. Not only do visioning workshops create a sense of purpose and direction for city administrators, they also create public ownership of and support for projects that affect the neighborhoods and people's everyday lives.

Sample Visions:

**Create transportation choices for all citizens that emphasize the use of bicycling and walking and integrate these forms of transportation into the physical and social fabric of communities within the (Master Plan Area). Provide a network of bicycle and pedestrian facilities extending from residential communities to key destinations such as workplaces, schools and commercial centers. Increase awareness by motorists and non-motorists of the needs of cooperative travel throughout the (Master Plan Area).*

**To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.*



Once a community agrees on a vision statement for its bicycle and pedestrian plan, city planners and consultants can help draft a set of goals designed to achieve that vision. Goals need to be specific enough that progress can be measured in a meaningful way. It helps to set a date when the goal should be achieved. Setting dates also helps in the budgeting process. Without dollar amounts targeted to achieve goals with specific completion dates, the competition for funds between departmental priorities will continue to push elusive or vague goals farther and farther back on the time horizon. Having goals that are measurable and achievable also helps to build morale with your planning staff.

Some Sample Goals:

- Goal #1: Increase (or double) the number of people using bicycling and walking as forms of transportation from the current (4.1%) to (8.2%) by 2015.
- Goal #2: Evaluate 100% of planned road projects for the bicycle and pedestrian components.
- Goal #3: Implement x number of miles of designated bicycle facilities within the master plan area by the year 2015.
- Goal #4: Build x number of blocks of sidewalks in urbanized areas annually over the next (5, 10 or 15) years to complete the sidewalk network.
- Goal #5: Simultaneously reduce by ten percent the number of bicyclists and pedestrians killed or injured in traffic crashes.
- Goal #6: Implement a safety program for children under age 16 and for seniors over age 65.

Below each goal you can develop a set of strategies or action items to achieve that goal. These would be tailored to your specific community and government structure. Sometimes there are existing committees and departments who are already working on a similar project who would be happy to take on a new task. In other cases, especially when existing city staff are already overwhelmed with responsibilities and no citizen committee exists with these interests, you may have to budget for a position or a study and create an advisory committee to take responsibility for implementing the plan. It is important that each strategy or action item have one person appointed to be responsible for tracking and coordinating efforts for that item. Holding monthly project or team meetings to collect progress reports from the responsible individuals helps everybody keep on track, identify problems before they get out of control, and coordinate efforts that may be duplicated or overlapping.

2.2 Budgeting for Success

Too often the best-laid plans end up simply ignored on a shelf somewhere because there was no budget allocated to implement them. To be effective, you need to tie some dollar estimates to your plans and ask for an annual budget to plan and build your routes. The following figures are representative of recent costs in Utah to build Class I and Class II facilities. Inflation could add 5% per year to these costs.

John Knudsen, who administers the State Non-Motorized Trails Grant program, says that a typical 10' wide urban trail with 3" of asphalt on a 6" to 10" compacted sub base can run between \$70,000 and \$150,000 per mile, exclusive of land acquisition costs, depending on a number of variables. The less expensive trails to build are located on flat ground with minimal vegetation, drainage and street crossing issues. The most expensive trails are typically



on sloped ground with heavy vegetation, requiring cut and fill, drain pipes, tree cutting, geotextile treatments to keep the growth from coming through the trail surface, etc. Some items like informational signs, lighting and benches qualify for certain grant funding and others do not. Cities have to come up with the 50% match money on State Trails projects and 20% on the Federally funded Enhancements projects.

Class II bike lanes on the street are really very inexpensive to do. It amounts to the cost of the paint and a bike route sign on every block. The paint cost can usually be absorbed by the Streets Department (since they have to re-paint the streets regularly anyway) and the signs run about \$40.00 a piece. The costly items, if you run into them, are for replacing the bicycle unsafe drain covers. Rebuilding the sewer boxes and putting new covers on them can run into hundreds of dollars each. You can check with your Public Utilities Department to see if they have a regular replacement schedule and whether you can get your bike lane streets moved up on their priority list.

To sell a Master Plan concept it helps to develop a spreadsheet listing each proposed project, the number of estimated miles in length, along with an estimated or average cost per mile to build it. Then, for each project, identify a potential funding source with the percent of match required from the City. Class II projects, since they often require only paint and signs, can usually be absorbed into the existing Streets Maintenance budget. From this list you can come up with a dollar amount the City needs to budget to implement the plan within a given time frame. Transportation Master Plans often list goals in terms of 5, 10, 15 and even 20-year time frames. You need to have a sense of how much money you should reasonably ask for on an annual basis to complete the plan and have the support of key City Council representatives before your item goes to them for a decision.

2.3 Three Design Elements Needed in Every System

- Connectivity: Network Planning
- Safety: A Planning Must
- Convenience: The Incentive to Bike or Walk

The key to starting a plan for your bicycle route system is to start thinking about bicycle riders needing to go everywhere people currently would go in a car. Bike riders commute to work from their homes, they go shopping, to the movies, to school, and they take recreational rides just for fun. They don't want to go miles out of their way to get to a safe street or bike trail. Cyclists need to go everywhere car drivers go in urbanized areas safely and with a connection all the way to their destination. The three key elements to every bicycle plan should be connectivity, safety and convenience. These three elements are all interrelated, as discussed below, but if you leave out one component, the entire system ceases to function.

Connectivity: Network Planning

The AASHTO Guide for the Development of Bicycle Facilities provides good descriptions and guidelines for designing bicycle routes, lanes and paths. However, these facilities are useful only when a network of them is implemented so as to provide meaningful transportation functions without requiring the use of an automobile. Think about origins and destinations and the quickest route between them:

- Homes to jobs
- Jobs to shopping centers
- Shopping centers to schools
- Schools to homes, etc.
- Pedestrian/transit connections
- Bicycle/transit connections

The Utah Transit Authority (UTA) now has bike racks on all their buses system-wide, and light



rail stations are being planned with bike racks and lockers, too. Consider adding bike lockers at “park ‘n ride” lots. Local governments need to participate in transit planning by providing safe connections for cyclists and pedestrians to bus and light rail stops. The possibilities of intermodal linkages in Utah have not been fully realized.

Safety: A Planning Must

“Safety” is one of the most frequently cited reasons people of all ages give for not considering walking or bicycling transportation. Safety concerns range from personal security to fear of motor traffic. From a cyclists’ or pedestrian’s perspective, it is easy to blame automobiles, or more accurately their drivers, for accidents. However, Salt Lake City accident reports show that cyclists who violate basic traffic rules account for at least half of the auto-bike accidents. A recent study found that bicycling against traffic increases accident risk by 360%, bicycling on the sidewalk increases accident risk by 180%, and bicycling the wrong way on the sidewalk increases accident risk by 430% (Wachtel and Lewiston 1994).

From the [NHTSA Traffic Safety Facts](#) report, we know that:

- 71% of pedestrian fatalities occur in urban areas, and 80% of those occur at non-intersection locations.
- Older pedestrians (ages 70+) account for 19% of all pedestrian fatalities and have the highest death rate of any age group.
- Of all fatalities to nonoccupants of motor vehicles, 85.7% are pedestrians.
- Twice as many crashes with pedestrians and bicycles occur on weekends, compared to the rest of the week.
- Alcohol involvement (either motorist or

pedestrian) was reported in almost one-half of crashes resulting in pedestrian fatalities.

- The most common bicycle crashes involving children are the child’s fault: mid-block ride outs, rideouts at controlled intersections; and bicyclist unexpected turn or swerve.
- The most common adult (over age 16) bicycle crash types are the motorists’ fault: motorist drive-through (failing to yield from driveways and intersections), motorist overtaking cyclists from behind, and motorist unexpected turns.

Clearly, an approach of providing safe, clean and clearly marked facilities should be combined with an outreach program to educate bicycle riders and car drivers at every opportunity, including; elementary school programs, high school driver’s education, and the State Department of Motor Vehicles driver’s license exams and handbook. In addition to the free courses offered by your local City/County Department of Health, informative text on the back of a Bikeways Map can be an effective and low-cost approach. (See Figure 7)

Convenience: The Incentive to Bike or Walk

Experience in bicycle transportation planning in the U.S. and abroad reveals that in order for a system to be effective and used to any appreciable degree, it must be a complete system, blanketing an area with bicycle facilities. Studies have shown that most bicyclists will not use even the best bicycle facility if it greatly increases the travel distance or trip time over that provided by less desirable alternatives. Because a large portion of our daily trips are made within cycling distance from home (2 miles or less), an important goal for a successful bicycle transportation system is to attract people who are not currently using the bicycle as transportation.



There are plenty of Utah examples where bike trails have been built for recreational purposes, but require users to load their bikes into a car to get to the trail because bike lanes are absent between residential areas and trail heads. Making it convenient makes all the difference.

2.4 Bicycle Parking



Popular bike racks in Tiburon, CA.

Convenience is also the key in locating bicycle parking amenities: a sheltered, well-lit place near the door of destinations greatly enhances the quality of the trip experience for customers. We acknowledge the valuable information provided in the Oregon Bicycle & Pedestrian Plan for the following:

Secured parking, either in a locked enclosure or a bike locker, provides incentive for bicycle commuters. Showers and/or lockers are a major convenience when employees arrive at work after a five-mile bike ride.

For a bikeway network to be used to its full potential, secure bicycle parking should be provided at likely destination points. Bicycle thefts are common and lack of secure parking is often cited as a reason people hesitate to ride a bicycle to certain destinations. The same consideration should be given to bicyclists as to motorists, who expect



convenient and secure parking at all destinations.

Bicycle racks must be designed so that they:

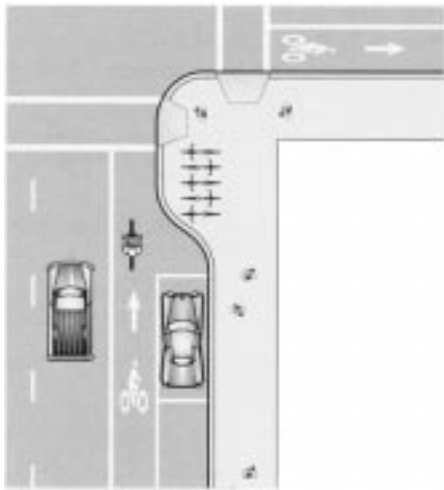
- Do not bend wheels or damage other bicycle parts
- Accommodate the high security U-shaped bike locks
- Accommodate locks securing the frame and both wheels
- Do not trip pedestrians
- Are covered where users will leave their bikes for a long time; and
- Are easily accessed from the street and protected from motor vehicles

To provide real security for the bicycle (with its easily removed components) and accessories (lights, pump, tools and bags), either bicycle enclosures, lockers or a check-in service is required.

Bicycle parking facilities are generally grouped into 2 classes:

Long Term – Provides complete security and protection from weather; it is intended for situations where the bicycle is left unattended for long periods of time: apartments and condominium complexes, schools, places of employment and transit stops. These are usually lockers, cages or rooms in buildings.

Short Term – Provides both a means of locking bicycle frame and both wheels, but does not provide accessory and component security



Bicycle parking provided away from main sidewalk area



Short-term parking by sidewalk cafe on downtown street

or weather protection unless covered; it is for decentralized parking where the bicycle is left for a short period of time and is visible and convenient to the building entrance.

The following recommendations are presented to help cities and counties develop local bicycle parking ordinances.

Recommendation Standards

(The recommendations are in italics, followed by explanatory text).

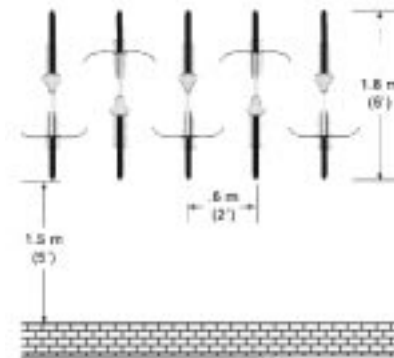
Dimensions

- *Bicycle parking spaces should be at least 1.8 m (6 ft) long and 0.6 m (2 ft) wide,*

and overhead clearance in covered spaces should be at least 2.1 m (7 ft).

- *A 1.5 m (5 ft) aisle for bicycle maneuvering should be provided and maintained beside or between each row of bicycle parking.*
- *Bicycle racks or lockers should be securely anchored to the surface or a structure.*

These dimensions ensure that bicycles can be securely locked without undue inconvenience and will be reasonably safeguarded from theft as well as intentional or accidental damage.



Bicycle parking dimensions

COVERED PARKING

- *Bicycle parking for residential, school and industrial uses should be covered.*
- *50% of bicycle parking for commercial uses should be covered.*
- *Where motor vehicle parking is covered, bicycle parking should also be covered.*
- *Where there are 10 or more bicycle parking spaces, at least 50% of the bicycle parking spaces should be covered.*

Covered parking is necessary for long-term parking (mostly residential and employee uses). For customers, visitors and other occasional users, covered parking is also beneficial.

Covered spaces can be building or roof overhangs, awnings, lockers or bicycle storage spaces within buildings.

Covered parking needs to be visible for security, unless supplied as storage within a building.



Covering should extend 0.6 m (2 ft) beyond the parking area, to prevent crosswinds from blowing rain onto bicycles.

LOCATION

- *Bicycle parking should be located in well lit, secure locations within 1.5 m (50 ft) of the main entrance to a building, but not further from the entrance than the closest automobile parking space, but in no case further than 1.5 m (50 ft) from an entrance where several entrances are involved.*

The effectiveness of bicycle parking is often determined by location. To reduce theft, a highly visible location with much pedestrian traffic is preferable to obscure and dark corners. Because of its smaller size, the bicycle can be parked closer to the rider's destination than a car.

Racks near entrances should be located so that there are no conflicts with pedestrians. Curb cuts at the rack location discourage users from riding the sidewalk to access the racks.

Many sites need two types of bicycle parking: short-term for customers, which should be up front; and long-term (covered) for employees, which may be placed farther away.

Separating bicycle from car parking by a physical barrier or sufficient distance protects parked bicycles from damage by cars.

- *Bicycle parking may also be provided inside a building in secure and accessible locations.*

This provides a high degree of security and protection, at the expense of some convenience. Dedicated rooms with card locks are very effective. Locating a room close to changing and showering facilities enhances its attractiveness.

- *Bicycle parking provided in the public right-of-way should allow sufficient passage for pedestrians: 1.8 m (6 ft).*



Bicycle parking placed close to entrance of large retail store

Bicycle parking may be provided within the public right-of-way in areas without building setbacks, subject to approval of local officials and provided it meets the other requirements for bicycle parking.

NUMBER OF SPACES

The recommendations are based on specific and easily measurable criteria; e.g. size of buildings, number of residential units, number of classrooms, etc.

Combined parking could be allowed in areas of concentrated small businesses, such as downtowns and business parks. Publicly provided bicycle parking could also be used.

For park-and-ride lots, requirements need to relate the number of bicycle parking spaces to the probable service area; e.g. the number of residents within a five kilometer radius of a facility.

The amount, location and usage of bicycle parking should be monitored and adjusted to ensure that there is an adequate supply. If bicycle use increases, the need for bicycle parking may increase above that specified when facilities are constructed. Local jurisdictions may have to require additional bicycle parking to meet the demand.

Employment and retail centers should voluntarily provide additional parking to satisfy the demands of customers and employees.



Excerpt from City of Portland Bicycle Parking Ordinance

MINIMUM REQUIRED BICYCLE PARKING SPACES

USE CATEGORIES	MINIMUM REQUIRED SPACE
Residential Categories	
Household Living	Multi-dwelling -2, or 1 per 10 auto spaces
Group Living	1 per 20 auto spaces
Commercial Categories	
Retail Sales and Service, office	2, or 1 per 20 auto spaces-whichever is greater
Drive-Up Vehicle Servicing, Vehicle Repair	None
Commercial Parking Facilities Commercial Outdoor Recreation Major Event Entertainment	4, or 1 per 20 auto spaces, whichever is greater
Self-Service Storage	None
Industrial Categories	
Basic Utilities	Park and Ride Facilities 2, or 1 per 20 auto spaces All others-None
Community Service Essential Service Providers Parks and Open Areas	2, or 1 per 20 auto spaces, whichever is greater
Schools	High schools 4 per classroom Middle schools 2 per classroom Elementary schools 2 per 4th and 5th grade classroom
Colleges Medical Centers Religious Institutions Daycare Uses	2, or 1 per 20 auto spaces, whichever is greater
Other Categories	
Agriculture	None
Aviation Facilities Detention Facilities	Reviewed on site-specific basis
Mining, Radio and TV Towers Utility Corridors	None



SIGNING

- *Directional signs are needed where bicycle parking locations are not visible from building entrances or transit stops.*
- *Instructional signs may be needed if the design of bicycle racks isn't readily recognized as such.*
- *For security reasons, it may be desirable not to sign long-term employee parking within a building, to avoid bringing bicycles to the attention of potential thieves.*

OTHER RECOMMENDATIONS

Long-term bicycle parking spaces should be provided at no cost, or with only a nominal charge for key deposits, etc. This does not preclude the operation of private for-profit bicycle parking businesses. Residential parking spaces should be available to residents as part of rental ownership contracts.

Short-term bicycle parking should be available near the building entrances of all land uses, and should be free.

- Signal Length/Pedestrian Education at Crosswalks
- A Network of Sidewalks
- Pedestrian Volumes and Sidewalk Capacity
- Connections to Transit
- ADA Requirements
- Avoiding Conflicts on Class I Trails

2.5 Special Pedestrian Needs

For years, cyclists and pedestrians have been lumped into a single group labeled "Non-Motorized Travel" for modeling and planning purposes. In reality, the needs of cyclists and pedestrians are quite different and deserve special treatment. Pedestrian trips in transportation models are largely underestimated due to the fact that walking is part of nearly every trip made: from the house to the car, from the parking lot to the building, and from the origin to the bus stop for every transit trip. The nature of



Crossing Main Street in Salt Lake City

pedestrian travel can also be viewed as the sum of societies' ambulatory abilities as it includes babies in strollers, children who run and play and don't watch for cars, athletes out for a morning run and senior citizens and wheelchair occupants who can only proceed slowly and with caution. Pedestrian planning must serve the needs of the least able in our society in order to serve society as a whole. Basic concepts in pedestrian planning are highlighted in several published studies (see the resource guide in the appendix).

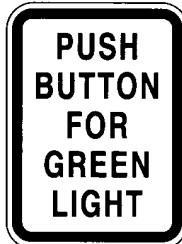
Signal Length/Pedestrian Education at Crosswalks

Studies have found that the majority of pedestrian accidents affect the very young (under age 15) and the very old (over age 65). Of all pedestrian accidents studied, 44% occurred at signalized intersections and in about half of those accidents the pedestrian was cited for a violation. Vehicles failing to yield to pedestrians, particularly in the left turning movement, were at fault for most of the other half. (TRB Report No.959). There is evidence that accident rates are no higher at intersections with pedestrian signals as opposed to traffic signals alone: there appears to be some evidence that pedestrian signals can provide a false sense of security to people wanting to cross a street and they may not be as careful as they would be at protected crossings. This is particularly true at mid-block crossings where drivers are not expecting a crosswalk.



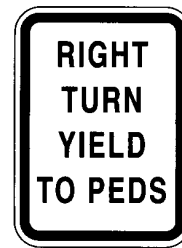
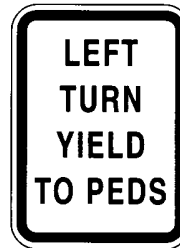
Some remedies to this situation have been suggested and tried in cities nation-wide:

- a) Provide educational signage to inform pedestrians that they must push the button in order to cross safely (giving them a longer signal length) and that they must not proceed once the amber DON'T WALK signal starts flashing.



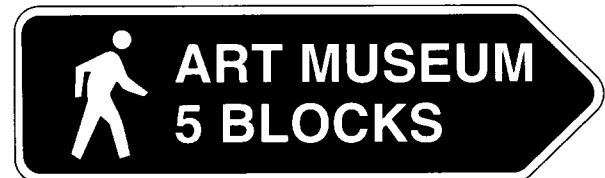
- b) Install traffic islands in the middle of wide intersections that provide some refuge for pedestrians between right-turning and left-turning traffic.
- c) Install traffic humps with distinctive paint markings or textured applications to make drivers more aware that they are crossing a protective pedestrian zone, particularly in heavily traveled areas and next to transit stops.
- d) In particularly busy pedestrian areas restricting turning movements during the pedestrian signal phase can be very effective. One approach, called a "Barnes Dance" after the inventor, allows pedestrians to cross in every direction during a protected signal phase with a box painted in the intersection that cars are not allowed to enter. (These are popular in England, but not yet used in Utah).
- e) Introduce traffic education programs aimed at elementary school children on safe crossing and bike riding techniques. See the Resource Guide on page 31 of this publication for who to call in your area for safety program assistance.

- f) Request pedestrian overpasses from District Offices at UDOT. Mack Christensen at UDOT Headquarters has compiled a list of prioritized pedestrian overpass projects in urbanized areas. Mack says their plan is to use this year's Enhancements funds for these projects. UDOT's criteria for pedestrian overpasses are listed in Figure 5. The list of proposed overpasses that meet UDOT criteria are listed in Figure 6. Ask UDOT about using Safety Funds for pedestrian safety improvements in your community.



A Network of Sidewalks

For the same reasons that cars need a network of streets and cyclists need a network of bike lanes, pedestrians also need a network of sidewalks to connect them to a multitude of destina-



tions in urbanized areas. A problem that is cropping up all over Utah now is the areas that were considered rural 20 to 30 years ago were developed without sidewalks. In the wake of the tremendous growth that is occurring in Utah, these areas are now suburban and urban areas with no sidewalks. It is not uncommon to see people walking and children riding their bikes along debris-filled road edges with fast-moving traffic passing by within inches. This situation is uncomfortable and unsafe for people who walk or ride bikes. Often, these are the same streets that are served by transit, forcing people to walk along them to access bus stops.



Pedestrian Volumes and Sidewalk Capacity

Because sidewalk planning in Utah has been the jurisdiction of local governments as they approved new subdivision developments over the past 20 or 30 years, sidewalks in Utah tend to be sub-standard, and in many cases, non-existent.



Man trying to walk along Redwood Road

According to the Federal Highway Administration's Facility Design Standards and Procedures; "The standard sidewalk width is 1.8m (6 ft.), exclusive of curb and obstructions. This width allows two pedestrians (including wheelchair users) to walk side by side, or to pass each other comfortably. It also allows two pedestrians to pass a third pedestrian without leaving the sidewalk. Where it can be deemed appropriate, the minimum width may be 1.5 m (5 ft.); on local streets, circumstances may include a combination of width constraints or low potential usage... Greater sidewalk widths are needed in high pedestrian use areas, such as central business districts."

Similar to the relationship between the volume of cars and throughput capacity, is the relationship between pedestrian volumes and sidewalk level of service. The ITE Transportation Planning



SOME SOLUTIONS TO THE SIDEWALK PROBLEM

1. UDOT has funds to build sidewalks on State-owned roads. Contact the Region Office in charge of the area needing improvement.
2. Each City has discretionary funds for new sidewalks, though this money is usually programmed out well in advance. Contact your Public Works Department for specifics on your City's process.
3. Special Improvement Districts (SID's) allow neighbors to combine resources to pay for improvements like sidewalks and street lighting, usually set up by a City's Public Works or Engineering Departments with assessments charged to residents over a period of time until they are paid for. One drawback to setting up a SID is that a majority of the residents have to agree to pay for the improvements, which can be a deterrent to getting anything done.

Handbook has a chapter on the relationship between density, speed, and flow for pedestrians, expressed in the same formula as for vehicular streams; that is,

Flow-Speed x Density ($v=S \times D$)

where flow is expressed as pedestrians per minute per foot, speed is expressed as feet per minute, and density is expressed as pedestrians per square foot. A maximum flow rate of about 25 pedestrians per minute per foot of walkway takes place when there are 5 to 9 square feet available per person. All movement effectively stops (Level of Service "F") at about 2.5 square feet per person. A curb or building face is assumed to reduce the effective width of a sidewalk by 1.5 feet. A line of parking meters may preempt 2 feet and a line of trees up to 4 feet. Crossing pedestrian movements will further decrease walkway capacities.



The standard sidewalk width is free of obstructions such as sign posts, utility and signal poles, mailboxes, parking meters, fire hydrants, trees and other street furniture. Obstructions should be placed between the sidewalk and the roadway, to create a "buffer" for increased pedestrian comfort. Movable obstructions such as sign boards, tables and chairs must allow for 6 feet of clear passage. Obstructions should not be placed in such a manner that they impair visibility by motorists.



Pedestrians, cyclists and cars all use this street in Tiburon, CA:
Cars slow down to walking speed.

Concentrated pedestrian movements occur at public events; in and near transit terminals, high-rise buildings, department stores, theaters, stadiums, and parking garages; and at other major traffic generators. Pedestrian safety, trip patterns, and convenience are necessary considerations in all multi-modal traffic and transportation studies.

Connections to Transit

An alternative transportation system needs to provide users with connectivity between modes of travel. A system in which users can bicycle to a transit shelter, take their bicycles on the bus or train and have a place to park at the other end, and where they can safely walk to their destination really starts to attract users to that system and out of their cars. A system that provides the linkages between modes of travel is both multi-modal and inter-modal: the ideal goal for all public transportation systems.



The bicycle/transit interface in Logan, Utah.

One area where sidewalk connections are often missing in Utah is along UTA bus route corridors. In outlying areas, UTA's best service routes are frequently along State-owned arterial streets where no sidewalks exist. Transit users are often forced to walk along muddy shoulders or in traffic lanes because the shoulders are full of snow or debris. These are often unlighted stretches of road with fast-moving traffic and no crosswalks for long stretches. One of the nicest things you can do to encourage transit ridership in your community is to systematically build sidewalks and crosswalks connecting people in neighborhoods and work centers to the transit stops.

Having a light and dry place to stand or sit and wait for the bus is one of the most neglected and most needed pedestrian amenities in Utah. There are both public and private sources of transit shelters in Utah. You can try calling Pete Baumgart at UTA to request publically-funded shelters for your community. His phone number is (801) 262-5626 extension 2382. However, UTA is not staffed or funded to provide and maintain the number of shelters that are needed throughout UTA's service area. There are privately funded shelters supplied by a company called Lamar Transit located in Murray. These shelters are paid for with an advertising panel on one side of them and are free to cities.



They are all designed in accordance with ADA guidelines. You will need to negotiate a contract with Lamar to install and maintain the shelters for your city. For more information on these shelters you can call Trina Keane at (801) 264-0578.



A Lamar Transit Shelter

ADA Requirements

The best guide available for determining whether your planned trail system meets with the standards established by the Americans with Disabilities Act is the Recreation Access Advisory Committee Recommendations for Accessibility Guidelines: Recreational Facilities and Outdoor Developed areas. It is highly recommended that all local planners have a copy of these guidelines handy and use them when any design questions arise. You can get your own copy by writing to the Access Board and asking for the Recreation Report (see appendix). The following is a summary of the ADA Guidelines for bicycle and pedestrian facilities:

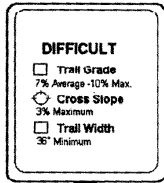
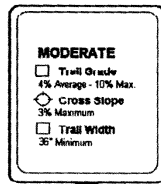
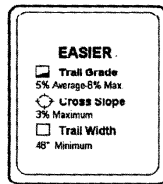
- A 36" minimum clear width
- 5' x 5' passing space every 200', or
- A minimum 5' clear width
- 80" of clear head room
- Path of Travel has a maximum slope of 1:2
- Ramps and curb cuts maximum slope of 1:12
- A maximum rise of 30" without a landing
- No changes > 1/2" without beveling
- A maximum cross slope of 1:5

- Surface must be stable and slip-resistant
- Textured surface or physical barrier between sidewalk and parking lot
- 1/2" maximum spaces allowed in gratings

The basic points to remember in planning bicycle/hiking trails is if you develop them at all (add a drinking fountain, building or paving the trail, etc.) you have to make every reasonable effort to make them ADA compliant. The General Rule states: "Whenever an accessible recreation trail is provided, it shall be designed to the highest degree of access practicable and feasible as specified in Section 6.0."

Sometimes grades are too steep and the terrain too rough to accommodate wheelchairs and the Guidelines acknowledge that is acceptable as long as signs are posted stating the area ahead is rated moderate or difficult and not ADA accessible. It is always a good idea to include some ADA accessible trail where the slopes are more gentle and access is provided from the parking lot to allow a mix of users to enjoy at least a portion of the trail experience. (See Appendix 6: ADA Guidelines Survey for Pathways)

In Salt Lake City we have seen people in wheelchairs speeding along in the Class II bike lanes, sometimes being pulled along by a canine companion. City Engineers checked all the rule books and could find no specific language that either permitted or denied this use, so decided to look the other way. If bike lanes become so heavily traveled that wheelchairs create a conflict that is hazardous to the health and safety of all users, then maybe something needs to be done. So far in Utah this hasn't been a problem.



The Redondo Beach Class I Trail accommodates cyclists, joggers, roller bladers and dogs.

Avoiding Conflicts on Class I Trails

Class I trails are great for recreational use and serve a mix of joggers, parents with baby carriages, in-line skaters, walkers, and even wheelchair users. The only problem with trails is when they become so popular that the number of users start to have conflicts and collisions, a hazardous situation is created for all concerned. Ideally, enough width would be provided so that pedestrians, bikes and horses could be separated, minimizing those conflicts. If you use as a guide a minimum of four feet for each direction of bicycle traffic, plus at least two feet for each direction of pedestrian traffic, a beginning width of twelve feet is needed. (The minimum used by the State Parks Department is ten feet). As trails increase in popularity some cities have had to go back and re-pave them at greater widths, installing directional signs and markings to minimize the conflicts. Commuting cyclists, who want to reach their destination quickly and with a minimum of conflicts, will almost always prefer bike lanes on the shoulder of streets over a busy Class I trail situation. Pedestrians who have ever feared for their lives while dodging fast-moving bicyclists would agree that fast bicycles belong in the street.



CHAPTER 3: PUBLIC INVOLVEMENT

Many local planners are grappling with growth problems and have very little time to get out into the community to get public input and support for their plans. This is unfortunate, because citizen advocates for bike lanes and trails can be a planner's greatest ally when it comes time to seek City Council support to adopt a plan.

Conversely, citizens who feel excluded from the planning process can defeat a proposal if they feel their private property rights are being violated. If there is no Bicycle Advisory Committee in your community you might think about starting one. You can network among known cyclists and have them invite their friends along to monthly meetings or you can advertise in the newspaper that a new committee is being formed (or both !). Once these groups get started and nominate their own leadership you will benefit immensely from their user perspective on problem areas. You will find their support with local elected officials to get the projects done invaluable.

Some other fun projects to get your citizens involved in supporting and using bicycle projects are to organize some bicycle events or trail-building parties. Salt Lake City now attracts over 3,000 participants in a week of bicycle events called Cycle Salt Lake, patterned after the Boulder, Colorado Bike Week programs. Volunteer labor used to clear and build trails can be counted toward the City's 50% match for State Trails grants.

Success Stories: Getting Support From City Leaders

There was a great success story recently in Salt Lake City dealing with getting a section of the Bonneville Shoreline Trail opened up for public access. The members of the Bonneville Shoreline Trail Committee invited a few key Planning Commissioners and City Council members to join them for a walking tour of the Shoreline Trail. City officials saw the beauty of the vistas from the trail and they saw where their historic access had been cut off by the development. Working with the developers, the trail was re-opened with a unanimous vote.

Another success story in Utah has been the high level of public involvement and support for trails in Utah County. The Mountainland Association of Governments reports citizen advocates having such a strong sense of ownership of the trails and open space in their communities that adoption of their Non-Motorized Transportation Plan was assured success before it went to the Regional Planning Commission for adoption. Similar success stories can be achieved in your communities with approaches that build political support for your cause.

The chapter on Public Involvement from the NHI Pedestrian and Bicycle Safety Course is included in its entirety in Appendix 7.



CHAPTER 4: INTEGRATED PLANNING TECHNIQUES

Integrating bicycle and pedestrian elements into planned state and local road projects holds the biggest promise for improving non-motorized travel in Utah. This is largely due to the inadequate funding designated specifically for bicycle and pedestrian projects to meet these needs, and a growing awareness at the State level that we need to design and build better (i.e. more friendly) roads. There are several areas where bicycle and pedestrian projects can and should be integrated into existing planning systems and budgets:

- Part of the Transportation and Parks Master Plans
- Opportunities in City's Zoning Ordinances
- Bicycle Route Maps For Education and Promotion
- Integrated Street Maintenance

4.1 Part of the Transportation and Parks Master Plans

A Bicycle and Pedestrian Plan for a City is more likely to be adopted and implemented if it exists as an element of its Transportation Master Plan. You can demonstrate how the needs of all citizens in your City can be met by adding some sidewalks here and some extra road width for bicycles there. Class II bike lanes are easier to implement when they are part of an overall street improvement and maintenance plan. Likewise with the Class I system: when it is part of a City's Land Use Plan or Park Development Plan, there is a much greater chance of it getting implemented. Trails simply make parks more attractive and friendly for all user-groups. The unfortunate result of splitting Class I and Class II bicycle routes into two different department's plans is there ends up

being very little coordination to connect the two. Park planners may not think about the traffic hazards of mid-block trail crossings, for example, and transportation engineers may not be sensitive to all modes of travel. It would be ideal to have one person in charge of coordinating the two elements, if the City's budget would support such a position.

4.2 Opportunities in City Zoning Ordinances

With zoning ordinances, if you include a requirement that bicycles, pedestrians and transit users must be addressed in every site plan, you are simply helping developers make better plans. Guidelines and incentives for developers of new and modified projects should include:

- A requirement that a percentage of all parking provided be for bicycles (See example on page 15; Portland Bicycle Parking Ordinance).
- For office complexes of a certain size, require showers and lockers for joggers and cyclists.
- Allow shared use of existing parking and reduce the minimum number of parking spaces in exchange for providing a transit shelter, subsidized bus passes to employees, a day care center on site, or other incentive programs. (Daycare centers on site allow parents to take transit or carpool who would not be able to otherwise.)
- Allow for home business use with minimal traffic impacts, creating a mix of services in neighborhoods within walking distance.



- Plan for a balance between the number of jobs and housing units built in walking distance of each other with corresponding incomes and home prices.
- Minimize the front setback requirement for better pedestrian access from sidewalks and transit and put parking in the rear of the building.
- Require shelters, awnings, trees and benches on sidewalks for pedestrians.
- Provide incentives for developing mixed uses around transit hubs including day care facilities, gyms, convenience stores, restaurants and residences.



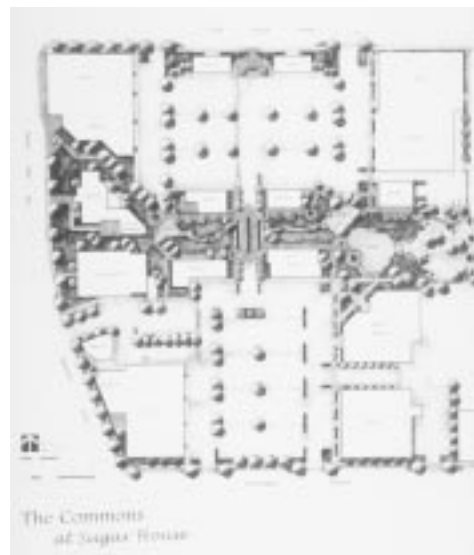
A pedestrian and transit-friendly shopping mall in Eugene, OR

- Designate and preserve open space for perpetuity.
- Build bike trails and lanes through planned developments that connect with the regional system.
- Plan pedestrian paths that connect people to the surrounding community.
- Reduce physical barriers between projects (fences, curbs, walls).
- Plan landscaped buffer zones between cars and pedestrians.



A residential/commercial pedestrian connection in the Seattle area.

The plans for the Sugar House Downtown Redevelopment are some of the best we have seen in Utah, centering on a creek and open space with a pedestrian orientation to the retail shops and restaurants. Another good plan we have seen is for the new Gateway Project on the west side of downtown Salt Lake City featuring a pedestrian mall and unique, small shops and restaurants. Also, the South Mountain project in Draper promises to provide enough mix of uses that many trips will be made on foot or by bicycle.



Sugar House Redevelopment Plan



The kind of development in this photo is also being approved every day in Utah. It does not support transit service, there are no sidewalks planned, and there is nowhere to walk or bicycle to. You must use your car for every trip if you live here.

4.3 Route Maps for Education and Promotion

Having a Bicycle Route Map printed for distribution in your City can serve a multitude of purposes. The foremost reason, of course is to visually educate cyclists on the number of routes you have either completed or are proposing for the near future and the safest network they should use to reach their destinations. The back of the map can be used to get other educational messages across, like the State Motor Vehicle Code text relating to bicycles and how to use hand signals. Sample symbols and text for the map are found in Figure 7.

Another important reason to have a published bike route map is its value as a promotional tool. A map is something you can point to in meetings with the public showing how far you have come, and how far you want to go. It can initiate discussions about the preferred routes between Point A and Point B and the hazards that lie in-between. It is also very valuable as a tool to get your planned routes incorporated into other departments plans: street improvements, maintenance, utility upgrades,

etc. Other departments can help you realize your vision once they see the big picture. The cost of printing maps can be off-set with paid advertisements from small businesses such as local bicycle shops, bagel eateries and coffee shops. In-kind services from the UTA Bikes on Buses program and a cash donation from the Mayor's Bicycle Advisory Committee helped Salt Lake City design and print their bike map without costing the City a cent.

4.4 Coordinated Maintenance Plans

The question almost always comes up in public meetings where cycling is being promoted as an alternative form of travel: "What about our weather? Doesn't it make cycling difficult or impossible here?" The answer depends on the hardiness of the cyclist and the attentiveness of the snow plow crews and not the snow per se. We often get nine or ten months out of the year with good, dry weather for cycling. We only have to look at our neighbors in Boulder, Colorado who get an average 11% bicycle mode split with weather very similar to ours to see that snow is not the major deterrent to cyclists. UTA has reported that they are carrying between 100 and 200 bicycles per day on the bus bike racks during the peak of the snow season.

If cities worked with their snow plow crews to clear the shoulders of streets designated for bicycle travel it would make cycling safer and more attractive. UDOT, County and City crews all tend to pile the snow in the shoulders and on the sidewalks wherever they go. Writing letters to your District Office at UDOT might help. Send them a map or a list of the streets they maintain that are used by your cyclists and ask them to give those streets special plowing consideration.



Other concerns of cyclists arise when the snow melts in the spring and summer and leaves gravel and broken glass and debris on bike lanes and shoulders. Again, this problem can be remedied with your street sweepers if they know which streets need special attention. Handing them a bike route map of your city with a requested sweeping frequency schedule is a useful approach.

In the fall a new set of concerns arise for cyclists. This is when the road maintenance crews go out to repair and resurface damaged roads. Typically in Utah, big trucks and crews go out and spread a layer of tar which is followed up, with a layer of gravel chips that are pressed into the hot tar. This process is called "chip seal." Although we understand that maintaining streets must be done, the chips are especially nasty for bike riders, and often remain loose on the shoulders for weeks. Some of the chips are sharp enough to pop tires, they create an unstable surface to ride on and can make cyclists lose their balance, at which point those nasty sharp chips become imbedded in knees and elbows. Another frustration for cyclists is when maintenance crews pour hot tar on the street. Riding on it before it has completely dried sprays permanent black tar up back sides and onto legs. As a partial remedy for this problem Salt Lake City asked the Streets Maintenance crews to substitute slurry seal for the chip seal in the bike lane areas. Slurry seal is sand mixed with tar, so the bumpiness is reduced. It doesn't hold up to the abuses of



Construction projects often neglect the needs of bikes and pedestrians.

heavy traffic as well as chip seal, but heavy traffic shouldn't be in the bike lanes anyway. Another idea we tried is to add the slurry seal on top of the chip seal. See what will work in your City.

An ongoing maintenance-related problem is roadside construction projects that require fencing or cones to divert traffic away from the construction site but leave no room for a bicycle or a pedestrian to get through. We have also seen construction projects that block sidewalks on both sides of one street. Construction supervisors thought they were being thoughtful to post a sign for their project stating the sidewalk was closed and to use the other side, when the project on the other side of the street had done the same thing. The poor pedestrians are left stranded with no idea how to get around the mess. Handicapped individuals are at an even greater disadvantage in these situations. Holding some bicycle and pedestrian sensitivity training sessions with city staff who issue construction permits and approve traffic plans can help overcome this problem.

Garbage and Sewer Problems

Because commuting cyclists ride in the shoulders of the road, they encounter all kinds of problems that motorists don't see. Cyclists are often observed swerving out into the traffic lane to avoid gravel, debris, and broken glass. Work with your Streets Maintenance Department to get the most used bicycle routes swept more often. In Utah we have a real problem with deep gutters and steep drop-offs from the shoulder. As roads are re-built the gutter angles should be moderated to make them safer for cycling. A systematic plan to replace the old "wheel-catcher" storm drain grates with new bicycle-safe ones is also a valuable effort. If you fix just a few every year, with time you can fix most of the problem spots.



The placement of garbage cans in designated bike lanes can also cause a serious safety concern for cyclists who must swerve to miss them, often into the path of oncoming traffic. This isn't an easy problem to solve. Sometimes a row of parking separates the bike lane from the curb and forces residents to place cans in the bike lanes. Some cans could certainly go between parked cars or be removed more quickly if

residents were aware of the problems they were causing.

One idea is to put a notice to residents in their utility bills. This is a service that is provided free of charge by many utility companies. Also, working through your community councils to notify residents of the problem could help the situation.



CHAPTER 5: FUNDING SOURCES FOR BICYCLE AND PEDESTRIAN PROJECTS

There are a number of sources available in Utah for building bicycle and pedestrian projects. Other states have created additional funding sources, like developer impact fees, spot improvements money, and a set-aside amount (1% in Oregon) from every highway project. Some states elect to shift funding from other ISTEA and STP funds into trail and transit projects. Most money is allocated strictly for construction costs. There is very little money available for planning non-motorized projects in Utah that serve bicycle and pedestrian commuters in urbanized areas. The funds that are available have largely been spent on Class I trail projects on the fringes of urban areas (see figure 9: Salt Lake County Recreational Trails Inventory).

Existing funding sources allocated at the State level for bicycle and pedestrian projects include:

- ISTEA (now TEA-21) Federal Funds
- Congestion Mitigation/Air Quality Funds (CM/AQ)
- Community Development Block Grants (CDBG)
- State Non-Motorized Trails Grants
- Riverway Enhancements Grants
- State Trails Crossing Fund

5.1 Federal Enhancements Money Under TEA-21

Congress passed an ISTEA reauthorization bill May 22, 1998. TEA-21, the Transportation Equity Act for the 21st Century, was signed by President Clinton in early June. Additional FY 1998 apportionments, including Transportation Enhancements (TE) apportionments and spending authority were released to the states immediately upon official enactment in July. The good

news for Utah is that new language was adopted making provision of safety and educational activities for pedestrians and bicyclists eligible TE activities. Another expanded category that will benefit Utah is Activity 10: Mitigation of Highway Runoff, to include projects that reduce vehicle-caused wildlife mortality while maintaining habitat connectivity (wildlife undercrossings) for threatened or endangered species. If undercrossings could also be used by bicyclists and pedestrians, all groups would benefit. The Salt Lake Tribune announced on July 25th:

"The federal transportation bill passed by Congress is expected to funnel \$22.5 million into Utah during the next five years for bicycle and pedestrian paths, plus highway and rest-stop landscaping.

The money comes from highway-enhancement funds tacked onto transportation appropriations for projects such as light rail and Interstate 15 reconstruction.

This week, the state Transportation Commission voted to create a citizens committee to help it decide how to use that money. A portion of it can go to local governments to help with bike-pedestrian trail development.

Commissioners say they want to divide those funds between the Utah Department of Transportation (UDOT) and the committee. The UDOT money could be used at the agency's discretion for state-highway landscaping and development of rest areas.

The committee would then focus on helping fund local bike and pedestrian paths, according to UDOT executive John Quick.

The commission will appoint five members from communities statewide, plus four members from among Utah Department of Transportation employees, including one commissioner.

Still to be determined is how that \$22.5 million pot, at \$4.5 million a year, will be divided between the two groups. Between 1992 and



1997, the state got \$21 million in such enhancement funds, including \$14 million for bicycle-pedestrian projects.

The citizens committee at that time dispensed all of the money, based upon project applications submitted by local governments statewide.

...The newly reinstituted group will take the funds it has available and dispense them in a series of annual matching grants for various community projects. Those communities will likely have to match 20% of the money granted by the state group."

New grant applications will be available soon from the UDOT Program Development Office at 965-4000. Ask to speak with Jan Yeckes, Bicycle/Pedestrian Planner or Richard Manser, Engineer for Statewide Planning. (See Appendix 8: Developing a Successful ISTEA Enhancements Application For Trail, Bicycle and Pedestrian Projects)

Most cities who have tried building projects with Enhancements money swear they will never do it again because they end up taking three times as long and costing twice as much as if the City just did it with their own money. Be forewarned. Ask what you can do at the outset to speed your project along and avoid the delays that can be so frustrating.

5.2 Community Development Block Grants (CDBG)

CDBG money is apportioned to the States from the Federal Government based on population and poverty indices and is administered by Cities, Counties and Associations of Government (see the Resource Guide at the end of this publication for the AOG in your area). Projects must be located in low to moderate income neighborhoods and require no matching funds. Maps are available for your area identifying target neighborhoods that qualify for funding. Any individual or local

government department can submit an application for funds. Your local CDBG program administrator can give you guidance on what kinds of projects qualify.

CDBG money can be spent on bicycle and pedestrian projects as they relate to street and sidewalk improvements, park development, community centers and neighborhood revitalization projects. Applications are available from your local Capital Planning Department in early fall and are due the second Friday in October of every year. The submitted applications go through a fairly involved public input process to prioritize and select projects for funding. Successful applications are then submitted to the HUD office in Washington, D.C. for final approval. Funding is made available to the local governments the following July first and construction can begin soon thereafter.

5.3 Congestion Mitigation/Air Quality Funds

This money is administered at the Metropolitan Planning Organization (MPO) level for the region. Projects must be able to quantify air quality improvements as a result of their being implemented. Planning projects no longer qualify. Regionally significant bike trail projects do qualify, especially if they are located in a congested corridor with no safe bicycle access. Sometimes it is difficult to justify expenditure on bicycle improvement when there are no cyclists currently riding a particular corridor. We used the argument that there was significant latent demand for cycling in the corridor due to the large population base at either end of the project and the short cycling distance between the two points (example was the Beck Street Bike Trail between Salt Lake City and North Salt Lake/Bountiful) to get our project funding approved. Talk to your MPO about getting your projects programmed into this source.



5.4 State Trails Funds

For State Trails funding, grant applications are due about May 1st every year. In 1998, there will be \$400,000 available for each of the Non-Motorized Trails and Riverway Enhancement Programs. A total of \$100,000 is available for the Trail Crossing Program. Copies of the grant applications for these programs are attached in Appendix 8 of this guide. They change very little from one year to the next, but it is a good idea to contact the State Parks and Recreation Department to get their blessing on your project concept before you spend a lot of time on an application that may not meet their criteria for the coming year. John Knudsen coordinates the Non-Motorized Trails and Trails Crossings Program at (801) 538-7344. Bill Thompson can help with the Riverway Enhancements Program at (801) 538-7357. A copy of the 1998 State Grants Application is included in Appendix 9.

The State Trails Crossing Fund was created to address the extra expenses associated with trails crossing State-owned roads. Sometimes you can get by with a pedestrian-activated signal that stops cars only when a trail user needs to cross. In other locations, traffic volumes are so heavy that only an underpass or overpass will do (which are usually quite expensive, and beyond the scope of this funding source). In spite of this new money being made available, our experience with UDOT has been that they will not allow at-grade crossings over their streets if they don't meet warrants. Meeting warrants means there already has to be a large volume of bicyclists and pedestrians trying to cross at that spot already, even where traffic speeds and volumes would deter the bravest of souls from making the attempt. Work with the UDOT Regional Officer for your area to improve the safety of bicycles and pedestrians trying to cross state owned streets.

5.5 Local Discretionary Funds

Cities and Counties have money to spend every year on a wide variety of projects. There is never enough money to fund everybody's pet projects, so departments compete against each other to get their projects on the Capital Improvements Plan (CIP) for the upcoming budget year. Presenting your ideas for trail or pedestrian improvements to your Mayor or Commission is a good first step to getting them included in your budgeting process. Department Heads can also champion a project in their internal budgeting process if you can convince them of the importance of what you are trying to do. Sources of local discretionary funds include:

- General Fund Money (from the Property Tax, Gas Tax, Sales Tax, etc.)
- Impact Fees (from new development)
- Bond Issues (voted for in a public election)
- Community Development Block Grants (from Federal sources)
- Community Match Grants (at the Mayor's discretion)
- Special Improvement Districts (Created with community support)
- Sidewalk safety money (distributed by UDOT to Cities)

Overall, it is always easier to get a trail or bike lane added to an existing project budget than to find new funding. This way, you are helping your Parks or Transportation Department create much better projects and adding to their planned costs only marginally.

There has been a lot of discussion lately about assessing impact fees on new developments to help pay for infrastructure improvements, and some debate as to whether or not they can be used for bicycle or pedestrian improvements in Utah. It could help your case for using impact fees calling your bicycle route system part of



your transportation infrastructure (which it is, technically), and part of your city's transportation plan. This idea came from the planners with the City of St. George. It couldn't hurt, in any case. We know that Boulder, Colorado assesses impact fees on developers to cover open space and trail development, too.

Check with your City administrators to see what funding sources you might be able to tap into for your projects.

5.6 Upcoming Legislation and Funding Programs

There are also some new potential funding sources for these projects on the horizon. Dave Jones (D), Utah has placed a bill request with the State's Legislative Research Department which will be drafted for the 1999 session. The language for this bill was borrowed from Oregon statutes (ORS 366.514 follows on page 31) which requires 1% of every highway project budget to be spent on the bicycle component.

Another legislative option being explored now in the Utah Senate is some language that could be included in SB176 to require cities to spend a fixed percentage of the new money they would receive to maintain state-owned roads on bicycle and pedestrian projects when those roads are transferred to local control.

Both House and Senate approaches to funding bicycle projects are expected to generate some lively debate on state vs. local responsibility for non-motorized travel, and how either entity can be expected to share a funding source perceived to be inadequate for current road maintenance needs. Cycling advocates voices are needed in this debate to remind lawmakers of the price we have paid as a society resulting from underfunding alternative transportation projects.

An idea that the Bonneville Resource Conservation and Development Council is working on is a fundraising effort from private sources to build or complete the Regional Trails System. The Bonneville RC&D recently established a Charitable Remainder Trust (CRT) to receive charitable donations from investors looking to reduce capital gains, estate and gift taxes. (See Figure 8). For more information you can contact David Spann, Director of the RC&D at (801) 553-2210.

ORS 366.514: Model Legislation from Oregon to Fund Bicycle Facilities

We wish you much luck and success in developing your own plans to make Utah a safer and friendlier place to walk and ride bikes.

Use of highway funds for footpaths and bicycle trails. (1) Out of the funds received by the Department or by any County or City from the State Highway Fund reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts or ramps as part of the project. Footpaths and bicycle trails, including curb cuts or ramps as part of this project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated. Funds received from the State Highway Fund may also be expended to maintain footpaths and trails and to provide footpaths and trails along other highways, roads and streets and in parks and recreation areas.

(2) Footpaths and trails are not required to be established under subsection (1) of this section:

(a) Where the establishment of such paths and trails would be contrary to public safety;

(b) If the cost of establishing such paths and trails would be excessively disproportionate to the need or probable use: or



(c) Where sparsity of population, other available ways or other factors indicate an absence of any need for such paths and trails.

(3) The amount expended by the Department or by a City or County as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund.

However:

(a) This subsection does not apply to a City in any year in which the one percent equals \$250 or less, or to a County in any year in which the one percent equals \$1500 or less.

(b) A City or County in lieu of expending the funds each year may credit the funds to a financial reserve or special fund in accordance with ORS 280.100, to be held for not more than 10 years, and to be expended for the purposes required or permitted by this section.

(c) For purposes of computing amounts expended during a fiscal year under this subsection, the Department, a City or County may record the money as expended:

(A) On the date actual construction of the facility is commenced if the facility is constructed by the City, County or Department itself; or

(B) On the date a contract for the construction of the facilities is entered with a private contractor or with any other governmental body.

(4) For the purposes of this chapter, the establishment of paths, trails and curb cuts or ramps and the expenditure of funds as authorized by this section are for highway, road and street purposes. The Department shall, when requested, provide technical assistance and advice to Cities and Counties in carrying out the purpose of this section. The Division shall recommend construction standards for footpaths and bicycle trails. Curb cuts or ramps shall comply with the requirements of ORS 447.310. The Division shall, in the manner prescribed for marking highways under ORS 810.200, provide a uniform system of signing footpaths and bicycle trails which shall apply to paths and trails under the jurisdiction of the department and cities and counties. The department and cities and counties may restrict the use of footpaths and bicycle trails under their respective jurisdictions to pedestrians and nonmotorized vehicles.

(5) As used in this section, "bicycle trails" means a publicly owned and maintained lane or way designated and signed for use as a bicycle route.

**BICYCLE AND PEDESTRIAN RESOURCE GUIDE**

ISSUE	CONTACT	AGENCY	PHONE
Enhancements funding for trail projects (TEA-21)	Richard Mansur Jan Yeckes	UDOT Planning Dept.	(801) 965-3853 (801) 965-3897
State funding for trail projects Non-Motorized Trails, Riverway Enhancements, Trails Crossing Fund	John Knudsen Lyle Bennett	Utah Division of Parks and Recreation	(801) 538-7344 (801) 538-7354
STP, CM/AQ funding for projects (Councils of Government)	George Ramjoue Shawn Seager Tom Fisher	Wasatch Front Regional Council Mountainland Assn. Of Gov'ts Cache Metropolitan Planning Org.	(801) 292-4469 (801) 377-2262 (435) 753-3631
Community Development Block Grants	Capital Planning Jay Aguilar Ken Sizemore Tyler Sinclair Bill Cobabe Russell Cowley	Your City or County Bear River Association of Gov'ts Five County Assn. of Gov'ts Southeastern Assn. of Gov'ts Uintah Basin Assn. of Gov'ts Six County Commissioners' Assn.	See Phone Book (435) 752-7242 (801) 673-3548 (801) 637-5444 (801) 722-4518 (801) 896-9222
Trail Advocacy Support	Laurie Rose David Spann Rick Reese/Jim Byrne Your Local Municipality	Virgin River Land Preserv. Assn. Bonneville RC&D Council Bonneville Shoreline Trail Comm. Bicycle Advisory & Trail Comm.	(435) 674-1074 (801) 553-2210 (801) 583-2333 See Phone Book
Safety Training and Education Helmets and Accident Prevention	Robert Jeppeson Eric Edwards Jill McArthur Jug Jacklin Kevin Thompson Other Areas Cal Cazier	Salt Lake County Salt Lake County Davis County Utah County Weber County City/County Health Department State Highway Safety Office	(801) 944-6607 (801) 944-6684 (801) 451-3340 (801) 370-8796 (801) 399-8433 See Phone Book (801) 538-6863
Bicycle Rodeo Kits	Jeanne Berman	Utah Highway Safety Council	(801) 293-2483
Forest Service Design Standards	Bob Piscopo	Forest Service Cottonwood Station	(801) 943-1794

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The Association of Pedestrian and Bicycle Professionals, Founded in 1995, can be reached on the internet at: pedbike@aol.com. The Federal Highways Administration is at 400 Seventh Street SW HEP-10, Washington, D.C. 20590 phone: (202) 366-5007, internet: www.fhwa.dot.gov
- Bicyclists' Response to Urban Bikeways, Kroll and Sommer, Journal of the American Institute of Planners, Vol. 43, No. 1, Jan. 1976.
- Manual of Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, Washington, DC, 1988.
- The National Bicycle & Pedestrian Clearinghouse has a wealth of resources that are available, free of charge, just for the asking. Their address is 1506 21st Street, NW, Suite 210, Washington, DC 20036 or call Peter Moe at (202) 463-8405 or toll-free at (800) 760-NBPC or e-mail at: nbpc@access.digex.net



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For more information contact The Bicycle and Pedestrian Program, Room 210 Transportation Building, Salem, Oregon 97310 or call: (503) 986-3555.
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For additional information or membership information contact the Rails-to-Trails Conservancy at 1400 Sixteenth Street, N.W. Suite 300, Washington, D.C. 20036, or call (202) 797-5400 or (202) 331-9696, internet: www.railtrails.org
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